DARAY® Medical

X340 Series

LED Medical Examination Lights

User Manual & Installation Guide

QAM.X340.0915.5

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1. Introduction

Thank you for choosing a Daray X340 examination light.
The X340 Series of lights are specifically designed to meet the demanding needs of today's medical department whilst providing the finest quality design with superior performance, reliability and value. The X340 examination light has a smooth, spring balanced arm and a telescopic ceiling tube making the light extremely versatile, perfect for gynaecological procedures.

This user & installation guide contains all the information you need for installation, operation and maintenance.

For further information on our product range and find out more about our company please visit www.daray.co.uk or call **0333 321 0971**

This product was designed & manufactured in Great Britain by:

Daray Ltd.
Marquis Drive, Moira
Swadlincote
Derbyshire
DE12 6EJ

1.1 Supported Lights

The Following Models are supported in this Manual	
X340 Examination Light	X340LC Ceiling Mount
	X340LW Wall Mount

1.2 Lighting Specification

Light Specifications	
Light intensity @ 0.5m	50,000 lux
Light intensity @ 1m	12,500 lux
Colour temperature	4,300K
Colour Rendering Index	Ra = 95
Red Rendering	R9 = 88
Reach	1000mm
Voltage	30V 1A 12W
Base of arm rotation	300°
Head rotation	320°
Body Colour	RAL 9016 white
Downtube	1000mm supplied as standard (2000mm optional)

1.3 Pre-Installation Responsibilities and component packing list

This document is a guide to the steps that need to be performed to correctly install the X340 Examination light. However, the work required to be performed is the responsibility of the owner or designated contractor/s.

All fixings between Daray lights and the building super-structure must be approved by either the chief project engineer or an appropriate and competent structural assessor.

The components supplied by Daray for fitting / installation should be the following items in the specified quantities.

X340 Ceiling Mounted	Qty.	X340 Wall Mounted	Qty.
1m or 2m Downtube with internal arm	1	Plug top transformer	1
Ceiling Mount Plate	1	Wall bracket	1
Optional (Ceiling Mount Cover)	1	Thumb Screw for Wall Mount	
Suspended Ceiling Cover	1	Light head and spring balanced rigid arm	1
Microfibre cloth	1	Microfibre cloth	1
Light head and spring balanced rigid arm	1	User Manual	1
User Manual	1	Warranty Card (found in back of User Manual)	1
Warranty Card (found in back of User Manual)	1		

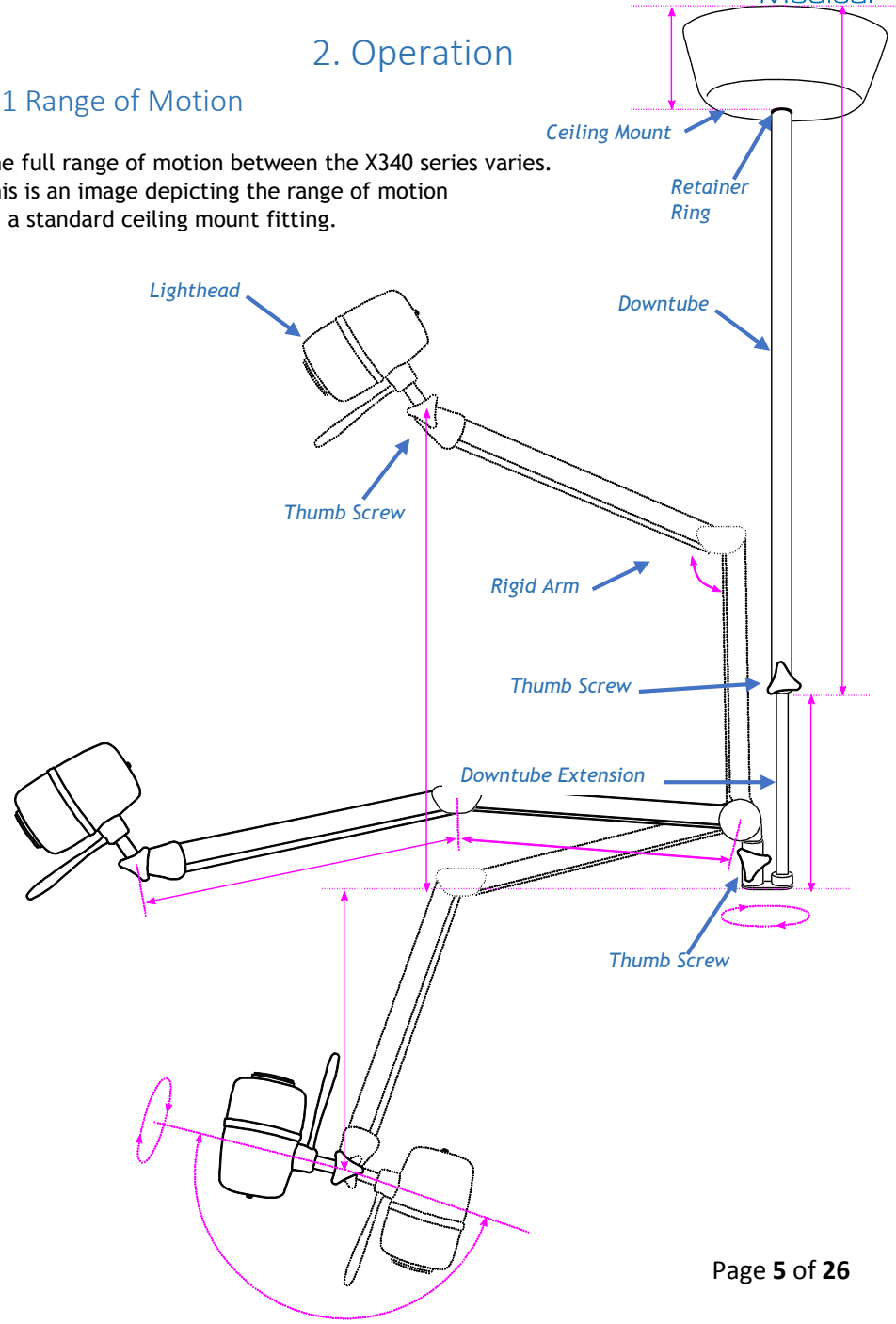
To use the ceiling mounted edition of the X340 the fixing point for the light must be between 2.4m – 3.9m from the floor; anything over 2.9m will require Daray's 2m downtube to then be customised.

Height of Ceiling Plate from Floor	Length of Downtube Required
2.4m	500mm
2.65m	750mm
2.9m	1000mm
3.4m	1500mm
3.9m	2000mm

2. Operation

2.1 Range of Motion

The full range of motion between the X340 series varies. This is an image depicting the range of motion on a standard ceiling mount fitting.



2.2 Pre-Start Checks

Please check that the power cable (when applicable) is without visible damage, harsh folds, knots or cuts in the rubberised coating

Please make sure the light head itself is not directed at people's eyes as the light will illuminate when powering on

Check that the cable is fully connected to the device and if you are using a plug top power supply, check that the plug is fully inserted into the socket and then switch the power on

2.3 Powering On & Variable Intensity

The X340 Series uses a single button (on the back of the head) to power the light on and off.

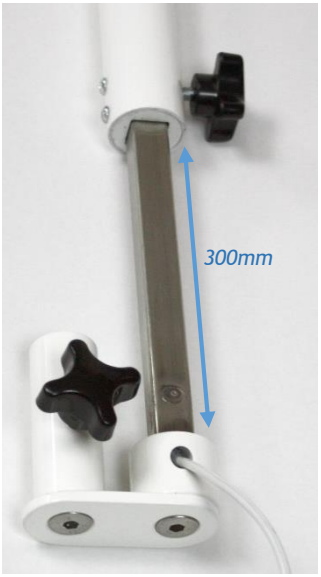
This switch also controls the lights variable intensity; hold the button in, to change the light intensity up or down.

Please Note, The variable intensity control has a memory function; whereby, if the light is turned off at a dimmed level, it will remember that level the next time it is turned on.

2.4 Operating the Downtube

The inner extension arm in the downtube extends to a maximum of 300mm. (See image.)

This extension is controlled by a thumb screw located around the back of the primary downtube.



Loosening the thumb screw will allow you to reposition the light to the required height. **Please ensure you use your free-hand to control the speed that the light lowers at, to make sure it doesn't freely drop.**

2.5 Adjusting the Lighthead

The X340 head is secured using a large thumb screw. This also controls the forward and backward motion of the head itself.

Loosening this thumb screw will allow you to position the lighthead up or down.

Care should be taken not to over tighten the screw.

3. Installation

3.1 Considerations

The procedures below are detailed to a high level however ***If in doubt please consult a qualified electrician.***

Minimum Room Requirements	The X340 ceiling mounted light has an internal extension that protrudes out from the main downtube, considerations for this and the amount of downtube required to fixing into the ceiling plate means that the minimum length of downtube is 500mm. Therefore the minimum allowed room height is 2.4m
Maximum Room Requirements	Please note, if the fixing point of the light is above 3.9m then a uni-strut platform and a 2m downtube will need to be constructed to bring the ceiling plate down to the required height.
Live Electric Circuitry	All personnel working around live circuitry should be qualified and following proper procedures
Heavy or Difficult fittings	Fitting the ceiling plate can be difficult and aspects of the fitting may require more than one person; this work should only be attempted by appropriate and competent personnel.
Existing Environmental Factors	When fitting, considerations have to be taken for existing services such as; fire alarms, vents, lights, etc. along with interior ceiling construction and any surrounding hazard.
Environmental Responsibility	Once our products are installed all packaging should be disposed of appropriately and recycled where appropriate and in accordance with local governing regulations.

These instructions are based on the assumption of a fresh fit into a room with no previous lighting structures. With installations onto sites with equipment already in place, we recommend that the previous lights' mounting plate be removed and the new one fitted as if into a fresh fitting.

3.2 Ceiling Mounted Lights

After concluding the structural stability of the ceiling structure it will be necessary to assess the construct and decide on the best course of action for installing the ceiling plate. There are various different methods for loading the plate onto the ceiling, below are various example methods that can be used.

3.2.1 Attachment methods and void suspension

Please note, the minimum room height allowed for fixing requires the bottom of the ceiling plate to be no lower than 2.4m.

- **Bolted Directly into the structure and secured with chemical bonding**

The is our primary choice for mounting our lights to the ceiling structure, appropriate rawl bolts and chemical bonding should be used to secure the fitting.

- **Bolted to a Uni-strut Construct**

When using a uni-strut construct for mounting the ceiling plate, you should ensure that the uni-strut is cross braced to ensure it is secure and does not move.

- **Weight dispersed over several timber frames**

This can be used when fixing the light to a timber frame structure in a room with a suspended ceiling. We recommend sandwiching or affixing uni-strut to the timber with a span of at least 4 rafters / joists with the uni-strut and then fixing the ceiling plate to the strutting to disperse the weight.

3.3 Lighting configuration

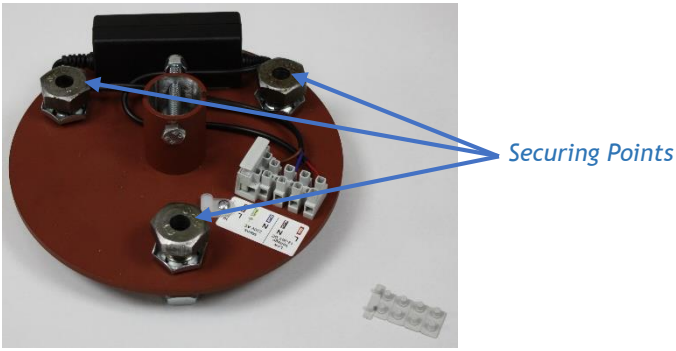
Dependant on the choice of attachment method, and whether the light is being attached in a void or directly onto an open surface ceiling; custom mounting aspects may be required.

Daray's standard mounting recommendation is to have the ceiling plate directly bolted into the structure when possible. This would also be suitable for non-voided areas with use of a Daray standard ceiling mount cover.

Ultimately the mounting method used is the responsibility of the project engineer or fitter. This includes the specification of attachment hardware, lateral bracing and the suitability of the surface to be fixed to.

3.3.1 Affixing the Ceiling plate

The location of the light should be decided by the end user / project manager or through schematical drawings.
Once the location has been decided it will be necessary to first mark the location of the securing points. This is done by placing the ceiling plate on the roof and using the holes in the plate as a template, mark the locations of the securing points on the fixing structure.



Remove the plate, now drill holes relevant to the structure and securing bolts used. Please use appropriate fixings when securing the plate to the ceiling.

Once the plate has been fitted, it will be necessary to ensure that it is balanced on the horizontal plane. This can be achieved by adjusting the three large bolts. After any adjustment it will be necessary to check that all fixings are still sound and that locking nuts are tight.

3.3.2 Wiring and transformer layout

Before working on electrical connections please make sure that the power to the light is switched off at the source and secured so that it will not be turned on during your work.

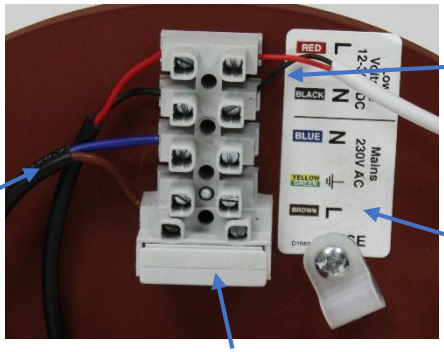
Ideally the cable used to power the light should be of a 1.5mm twin and earth type. Daray recommends that the power supplied uses an earthed switched fused spur, protected with a 3amp fuse.

The wiring should be as follows:

Live terminal	→	**brown** wire.
Neutral terminal	→	**blue** wire.
Earth terminal	→	**green/yellow** wire.

The above wiring is for modern wiring applications (post 2000). On completion of the wiring, the next process is to determine the length of the downtube.

Take the cable from the downtube and attach the wires to the choc block in the following layout.



Cable from the top of the downtube should be inserted here

Pre-installed Transformer is fitted here and should not require any work

Mains Power should be inserted here

Fuse Holder - 1 Amp Fuse - CS6144

The cabling leading to the transformer is black and should already be attached. To connect the cabling from the transformer into the main power we recommend you use an earthed switched fused spur.

3.3.3 Downtube adjustment and installation

The downtube provided will be either 1m as standard or 2m (optional) maximum. It is Daray`s recommendation that the bottom of the downtube is approximately 1900mm from the floor, therefore **the minimum room height suitable for the ceiling mounted light is 2.4m.**

Below is a quick table showing situational examples of what length downtube would be required

Height of Ceiling Plate from Floor	Length of Downtube Required
2.4m	500
2.65m	750
2.9m	1000
3.4m	1500
3.9m	2000

With the X340 Series the minimum length the downtube can be cut to is 500mm; this is due to the space required for the internal second arm and the space required to attach the downtube to the ceiling plate.

When cutting the downtube to length it is highly recommended that you pull the wire back through the downtube so that you don't cut through it. This can be achieved by extending the secondary internal arm and pulling the wire down through the hole in the bottom.

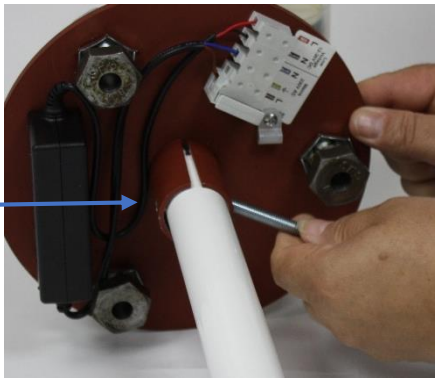
Once the downtube has been cut to length it will be necessary to de-burr the end of the pipe, we also recommend doing this to the inner and outer edges of the safety bolt's drill hole as this will prevent damage to the cable.

Before drilling the safety bolts hole, please direct spigot on the bottom the downtube toward the centre of the examination area to allow the best range of motion over the examination area.

Direct this part of the downtube toward the centre of the examination area

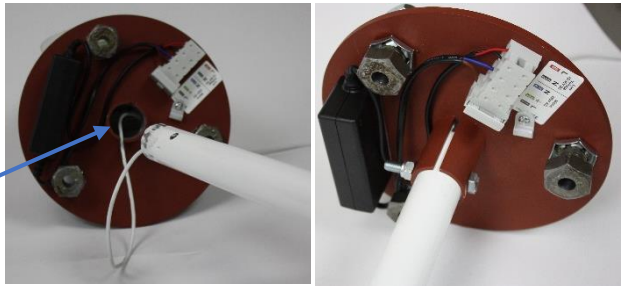
With the downtube directed it should be loosely fitted between the two metal clasps and then holes should be marked on the tube for where the safety bolt will go through; then remove the downtube and secure for drilling. A 7mm hole should be drilled through the downtube on both sides to allow the bolt to pass through.

Mark the location of this hole and drill

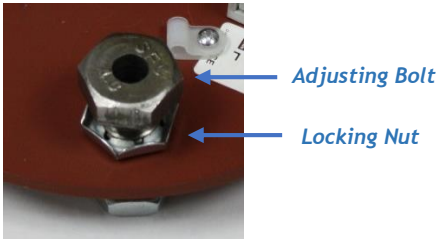


Now you should put the rubber retainer ring onto the downtube followed by either the ceiling trim or ceiling mount cover. This is to allow the covers to be fixed into position after you have attached the downtube to the ceiling plate.

Thread the wire back through the downtube and the hole in the middle of the ceiling plate; then place the downtube between the clasps on the ceiling plate. Slide the safety bolt through the clasps and the downtube (being careful not to catch the wire). Be sure to tighten the safety bolt and the nylon locknut.



It will be necessary to ensure that the downtube is absolutely vertical. To prevent arm drift. This can be achieved by adjusting the three bolts on the plate, then use the locking nut on the bolts to lock the adjustment. After any adjustment it will be necessary to check that all fixings are still sound and that locking nuts are tight.



Now push the ceiling cover up onto the mounting bracket and roll up the rubber retaining ring to stop the cover from dropping back down.

3.3.4 Lighthead and arm fixing

Lubricate the Spigot and insert arm into downtube and tighten the thumb screw.

Care should be taken not to over tighten the screw.

Now simply attach the cables using the DC jacks coming out of the arm and the downtube together.

The light can now be tested by applying power and pressing the power button on the back of the head.

Check the arm and head for smooth and correct movement. Your new Daray light is now ready for use.

To gain full support of our warranty please fill in our warranty web form or contact Daray by phone or email.

Daray also provide service plans to help you maintain your light.
Contact Daray on **0800 878 9864** for more details.

3.4 Wall Mounted Bracket Assembly

The wall bracket needs to be true on the vertical plane.

3.4.1 Considerations

Wall Construction	Before fixing it is important to consider the strength of the wall and the depth of the fixings used. Use of a building engineer or structural drawings may be required to decide on suitability.
Examinations to be undertaken	The Wall mounted version of the X340 lacks the 300mm downtube extension of the ceiling mounted edition. Therefore we recommend the bracket be installed approximately 1300mm from the floor to the top of the bracket. **It may be necessary to adjust this height, if there are specific medical procedures the light will be used for.** If in doubt consult the end user or DARAY. When installing the bracket take consideration of where you want the lighthead to sit when in its lowest position.
Locations of nearest mains sockets	The X340 wall mounted light uses a plug top transformer with a DC jack connection. Only the supplied certified power adapter should be used with the light. The length of this cable is approximately 1.5m so the wall mounted light should be within 1.2m of a mains power point

3.4.2 Placement and Installation

The power supply for the X340 series is a plug top transformer with a DC jack connection, these can be inserted into any standard UK wall socket.

Please note, under no circumstances should this product be connected directly to the Mains electrical supply, this product requires a Low Voltage Connection only and must only be used with a Daray Certified Power Adapter.

The light can now be tested by connecting the DC jacks, applying power and pressing the rocker switch on the head.

Check arm and head for smooth and correct movement. Your new Daray light is now ready for use.

To gain full support of our warranty please fill in our warranty web form or contact Daray by phone or email.

Daray also provide service plans to help you maintain your light. Contact Daray on **0800 878 9864** for more details.

4. Maintenance

The proposed maintenance is only a suggestion. Depending on the use of the product and the operating environment, this may need to be revised more often. Daray would strongly recommend against "quick fixes" with tape, etc. If you cannot resolve a problem then please contact our helpline on **0800 878 9864** or email **support@daray.co.uk**

4.1 Maintenance schedule

Weekly checks should include:-	Range of movement testing, it should be light and easy to move throughout the range
	No visible signs of excessive wear.
Monthly checks to include:-	Check the downtube and thumb screws for wear and report as necessary
Six monthly checks to include:-	Remove head and clean the interior of the hinge
	Remove arm, clean spigot and re-grease as necessary.
	Check all electrical connections are sound and that there is no visible cable wear.
	All fixings to be checked and be of sound construction.

4.2 Safety Precautions

- For all cleaning work, power off the equipment and where possible unplug the mains socket, only minimal cleaning fluids should be used.
- Please do not look directly into the light source when illuminated.
- If the equipment is dented or scratched this should not impact the usability of our lights however we advise that if the BioProtect® coating is damaged and the metal casing underneath is visible, please do not attempt to 'paint' over it as this will impact upon the effectiveness of the coating, simply use an alcohol based cleaning spray when cleaning and pay special attention to the cut.

If there is damage to the power cable or if exposed wire is visible
DO NOT USE

4.3 Cleaning

Do not use strong chemical cleaning agents or any abrasive materials to clean the light. The light is not waterproof so the use of excessive amounts of cleaning fluids could cause serious harm or injury.

The X340 Series lights are BioProtected on all painted surfaces and have fully enclosed heads with an Ingress Protection (IP) rating of 54.

We advise that the light should only be dusted with a soft flannel cloth, and the front cover gently cleaned with an alcohol-based liquid (aerosol) spray, and wiped dry.

4.4 Fuses and their replacement

For the ceiling mounted light the fuse is located on the ceiling plate on the terminal block connector (as shown in section 3.3.2). The fuse tray can easily be removed by hand and the fuse replaced.

The fuse supplied is 1 amp and this can be ordered from daray using the code CS6144.

Replace the fuse and check that light is fully functional. If fuse blows again then it may need investigating further by an engineer.

4.5 Adjustments

The head of the X340 series light has a 180 degree forward and backward motion; this is adjusted secured by the thumb screw at the bottom of the lighthead.

The head has a total turning capability of 320 degrees, attempting to push further may cause damage to the movement and internal wiring of the light.

4.5.1 Rigid Arm Adjustments

The X340 Series are all mounted on spring tensioned rigid arms which are balanced specifically to be able to be moved using a single finger touch.

Warning! These arms are under spring tension, as such do not try and adjust the internal mechanics of the arms.

These arms shouldn't need adjustment in their life cycle however if they start to droop or require any other work, we recommend that you contact Daray customer services to discuss this.

4.5.2 Detaching Parts

De-construction of the lights should be done following a reverse order of the instructions in section 3.

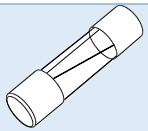
The X340 is a completely enclosed light and arm it should not be opened and is not serviceable outside of a Daray Authorised service centre.

For any issues requiring service work on the X340 please contact daray, as unauthorised work will **invalidate the warranty**.

5. Troubleshooting Guide

Problem	Possible Cause	Corrective Actions
No light output	Power Supply	**Wall Version -** Check the plug top adapter is plugged in and switched on at the power socket. **Ceiling Version -** Check that the switch for the power supply is switched on
	On/Off/Intensity Button	Press the button on the back of the light to check if the light will power on (if dimmed refer to poor light output actions).
	Fuses	Visually check fuses then check continuity with meter
	Cables	Check the visible wiring and make sure the DC connectors between the light and the downtube / PSU are fully connected
Poor Light output	Power Button	Please check the variable intensity is not just set to its minimum. To do this hold in the power button on the back of the head. This is the control used to adjust the intensity. If the light reduces more, simply remove your hand and then depress the button again
	Voltage in	Verify that the correct mains voltage and correct transformer is being used
	Voltage out	Verify correct secondary voltage (approx. 30V nominal under load)
Light patch not focused	Light head	In the unlikely event that this happens, please contact Daray
Arm drift sideways	Wall mount or downtube	On installation the arm has most likely not been vertically aligned and levelled. Please contact the original fitter or a qualified electrician
Head movement or drift	Light head	Please check the tightness of the thumb screw adjuster just below the head of the light

6. Replacement Parts

Picture	Description	Order Code
	Lighthead handle	**CS6142**
	Head thumb Screw	**CS6143**
	Wall bracket and downtube extension thumb screw	**CS6141**
	Plug-top transformer	**CS6148**
	1 Amp ceiling plate fuse	**CS6144**

7. Warranty Information

7.1 Returns Policy

IMPORTANT!
Please fill out your warranty registration online at www.daray.co.uk/warranty or contact Daray by phone (0800 878 9864) or email support@daray.co.uk

DARAY's standard warranty is 12 months. However, this period may be extended for most lighting products from 3 to 5 years* free of charge by completing and submitting the warranty registration.

Year 1:	**Warranty includes parts and labour (Return to Base)**	*UK only
Year 2-5:	**Parts only**	

We want you to be completely satisfied with your purchase. If you need to return goods purchased from DARAY Ltd, please read the following information carefully.
The DARAY Ltd returns policy provides guidance on when you can return goods we have supplied, and what you can expect from us once you do. To see our detailed returns policy and procedure visit *www.daray.co.uk/returns*

TYPE OF RETURN	REMEDY
DAMAGED GOODS Goods which are physically damaged on delivery	We must be notified within 24 hours of receipt.
Dead On Arrival (DOA) Goods which do not work	Goods which do not work on arrival or develop a fault within 28 days, we will advance replace the item.
GOODS DEVELOPING A FAULT Goods which have developed a fault within the warranty period.	If the fault develops after 28 days, but within the warranty period, we will initiate the returns procedure.
NON WARRANTY Goods which have developed a fault outside the warranty period.	If a fault develops outside the warranty period, we will initiate the returns procedure charges may be applicable.
OTHER Any situation which is not covered by any of the above.	We will always try to help, but we cannot normally offer a refund.

For additional clarification, please refer to our terms and conditions at *www.daray.co.uk/terms*.
In a small number of cases, we may determine that a replacement would not work any better than the original product we supplied. In such cases we will only offer a refund rather than a replacement for qualifying returns.
Replacement bulbs and spare parts ordered on our website or from supplied part codes are not eligible for credit. We will accept returns and exchange for the correct item.
If your purchase an item incorrectly you can return it within 14 days and it can be exchanged for another product of equal or higher value, excluding transportation charges incurred. Goods and packaging must be returned in their original condition. Under no circumstances will goods be accepted for return if they are damaged, have been subjected to improper handling or abuse or have been used.
If you send us goods that do not qualify for return, you will invalidate your claim to any refund, and you will be obliged to compensate DARAY Ltd for the cost of return postage and any other reasonable costs incurred processing the goods.
Your statutory rights are not affected.

7.2 Warranty Details

TERMS AND CONDITIONS OF WARRANTY

1. To qualify for this warranty you must register on *www.daray.co.uk* or return to Daray Ltd (Daray) the duly completed warranty-registration form accompanying the product.

2. Daray warrants this product (excluding lamp) against faulty material and workmanship during the period of the warranty. The period of warranty is the period stated on your warranty card and commences on the date of purchase of the product. In the event that the product is not in good working order Daray will provide, during the warranty period, a free repair service within the United Kingdom. The warranty is subject to proof of purchase being provided; therefore, you should retain your original receipt.

2.1 The repair service consists of the provision of spare parts and/or replacement products (at Daray's discretion) which will be provided on an exchange basis and will either be new, equivalent to new or reconditioned. All replaced spare parts and products shall become the property of Daray.

2.2 Daray's only obligation under this warranty is the provision of the service as set out above.

2.3 All products are returned to Daray at the customer's cost and risk. Products to be returned should be adequately packed. For the address to send returns to please visit *www.daray.co.uk*

3. Daray's arrangements for providing service provided under this warranty may include the use of sub-contractors.

4. This warranty does not cover damage or defects in the Product caused by or resulting from:

- Wilful neglect or negligence by anyone other than Daray;
- Improper use, storage or handling of the product;
- Use of non-Daray approved parts (such as replacement lamps) not compatible with the Product;
- Fire, accident or disaster;
- Use of non-Daray modifications other than in accordance with Daray's instructions;

Attachment of fittings and accessories not approved by Daray;

Repairs, modifications carried out by service personnel not approved by Daray;

- Damage caused by chemical corrosion from cleaning agents not approved by Daray.
- Failure to use or install the product in accordance with the manufacturer's instructions.

5. Nothing in this warranty shall have the effect of restricting or excluding the liability of Daray in respect of:

a) Death and personal injury caused by the negligence of Daray, or for fraud;

b) Under the *Consumer Protection Act 1987* to a person who has suffered damage caused by a defective product or to a dependant or relative of such a person;

c) Direct damage to your property caused by the proven negligence of Daray.

6. This agreement does not give any rights other than those expressly set out above and in particular, Daray will not be responsible for any loss of income, profits or contracts or any direct or indirect consequential loss, damage caused to or suffered by the purchaser as a direct result of this agreement.

7. This warranty is offered (subject to these terms and conditions) in addition to, and does not affect your statutory rights.

8. Daray may disclose your details and other personal information to companies within the Daray group including any subsidiary company or sub-contractor of Daray for the purposes of performing our obligations hereunder.

9. You must not resell outside the UK any products supplied by Daray and covered by the *Export of Goods (Control) Order 1992* (or any law that replaces it) without obtaining all necessary licences. You also agree not to sell the product in the UK if you know or think that the person buying the product intends to export it without getting the necessary licences. You agree to impose similar conditions to these on anyone you sell the product to.

10. These conditions shall in all respect be governed and construed in accordance with English law and the exclusive jurisdiction of the English courts.

Product:
Serial No: